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Roger Pellenc

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EXAMINER

ZHANG, JUE

ART UNIT

PAPER NUMBER

2838

NOTIFICATION DATE

DELIVERY MODE

12/08/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/580,155	Applicant(s) PELLENC, ROGER	
	Examiner JUE ZHANG	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 84-143 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 84-143 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/15/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 84-143 reading on Embodiment 2 in the reply filed on 07/30/2009 is acknowledged. After reconsideration, Applicant's arguments are found persuasive. Therefore, the previous requirement of Election has been withdrawn.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statements (IDS) submitted on 6/15/2006 has been considered by the examiner.

Drawings

4. The drawings are objected to because *the unlabeled rectangular box(es) shown in the drawings Fig. 6, 8, 9, 10 should be provided with descriptive text labels.*

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version

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of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

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USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 84-143 are rejected on the ground of non-statutory double patenting as being unpatentable over claims 1-26 of US Patent 7592773 respectively as indicated below.

7. Claims 84-143 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 respectively of copending Application No. 10579917, now US Patent 7592773. Although the conflicting claims are not identical, they are not patentably distinct from each other because with respect to the electric tool having at least three distinct functional sub-units of claims 1 of U.S. Patent 7592773, wherein the first sub-unit generating the mechanical operation of the tool..., the second portable sub-unit is provided with a lithium-ion or lithium polymer

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battery formed by association of a series of cells, each cell comprising one element or a plurality of associated parallel elements, on the one hand, ... the third sub-unit comprises at least one electric supply source. The three sub-units just as the three separate functional subassemblies of claim 84 in the instant application. And the lithium-ion or lithium polymer battery of claim 1 of U.S. Patent 7592773 is just as of the claim 85 in the instant application. Also in claim 1 in U.S. Patent 7592773 comprising... (e.g., microprocessor, managing charging, discharging, balancing of the battery ...) just as in the claims 86-143 of the instant application.

8. Please note, Applicant has the burden of disclosing each related application considered material to patentability under CRF 1.56, such as those noted herein, but not necessarily limited to those. Applicant also has the option of filing terminal disclaimers in each such application.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 84, 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakakibara (US Patent No. 6433517, hereinafter '517).

Claim 84, '517 teaches a power autonomous portable electric tool set (Fig. 1-4), comprising:

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a first sub-unit generating a mechanical operation of a tool comprising an electric actuator (col. 4, lines 25-36)(Fig. 3);

a portable second sub-unit (e.g., 50)(Fig. 2-4) forming an electric energy source of the set comprising a battery (e.g., B)(Fig. 4) and at least one electric or electronic module located in a vicinity of the battery for at least one of controlling and managing the battery (e.g., when battery pack 50 plug into the charger10)(Fig. 4);

a third charger sub-unit (e.g., 10)(Fig. 1, 4) for electrically recharging the battery comprising at least one electric supply source, wherein the third charger sub-unit adapts a voltage and a current of the at least one electric supply source to recharge the battery (Fig. 4, 6, 7 and corresponding text); and

a cutoff device structured and arranged to cutoff an electric supply of the electric actuator (i.e., a cut-off device under the trigger of 70 of Fig. 3 is implicitly taught in order for the motor to be turned off when 70 is not being activated)(Fig. 1-4),

wherein the first sub-unit is electrically disconnectably connectable to the second sub-unit, and wherein the third sub-unit is electrically disconnectably connectable to the second sub-unit (Fig. 1-4).

11. Claims 84, 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakoh et al. (US Patent No. 6229280, hereinafter '280).

Claims 84, 88, '280 teaches a power autonomous portable electric tool set (Fig. 1-4), comprising:

a first sub-unit generating a mechanical operation of a tool comprising an electric actuator (e.g., 32)(Fig. 4);

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a portable second sub-unit (e.g., 27)(Fig. 1-5) forming an electric energy source of the set comprising a battery [0015] and at least one electric or electronic module located in a vicinity of the battery for at least one of controlling and managing the battery (Fig. 3-7);

a third charger sub-unit for electrically recharging the battery comprising at least one electric supply source, wherein the third charger sub-unit adapts a voltage and a current of the at least one electric supply source to recharge the battery (e.g., see Fig. 1); and a cutoff device structured and arranged to cutoff an electric supply of the electric actuator (e.g., see Fig. 1, 4), wherein the first sub-unit is electrically disconnectably connectable to the second sub-unit, and

wherein the third sub-unit is electrically disconnectably connectable to the second sub-unit e.g., see Fig. 1, 4, 6).

Claim 88, '280 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the cutoff device is structured and arranged to cutoff an electric power supply of the electric actuator at least one of automatically and manually (Fig. 1, 4).

12. Claims 84-85, 88-90, 94-95, 101-103, 107-110 are rejected under 35 U.S.C. 102(e) as being anticipated by Takano et al. (US PG Pub. No. 20030096158, hereinafter '158).

Claims 84, 88, '158 teaches a power autonomous portable electric tool set, comprising:

a first sub-unit (e.g., 200, Fig. 2) generating a mechanical operation of a tool

comprising an electric actuator (e.g., see Abstract, [0004], Fig. 2)
a portable second sub-unit (e.g., 1, Fig. 2) forming an electric energy source of the set comprising a battery (e.g., 10)(Fig. 2-3) and at least one electric or electronic module located in a vicinity of the battery for at least one of controlling and managing the battery (e.g., see Abstract, [0011], Fig. 3);
a third charger sub-unit (e.g., see [0029], [0042]) for electrically recharging the battery comprising at least one electric supply source, wherein the third charger sub-unit adapts a voltage and a current of the at least one electric supply source to recharge the battery e.g., see [0029], [0042], Fig. 2-3); and
a cutoff device structured and arranged to cutoff an electric supply of the electric actuator (e.g., see Abstract, Fig. 2, 3),
wherein the first sub-unit is electrically disconnectably connectable to the second sub-unit (e.g., see Abstract, [0011], Fig. 2, 3), and
wherein the third sub-unit is electrically disconnectably connectable to the second sub-unit (e.g., see Abstract, [0029],[0043], Fig. 2, 3).

Claim 85, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the battery comprises one of a rechargeable electrochemical lithium-ion (e.g., [0004][0048][0049) or rechargeable electrochemical lithium polymer battery, formed by an association of a series of cells, each cell comprising one of one element and a plurality of associated parallel elements (e.g., see Fig. 2).

Claim 88, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the cutoff device is structured and arranged to cutoff an electric

power supply of the electric actuator at least one of automatically and manually (e.g., see Abstract, [0011], Fig. 2-3).

Claim 89, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the cutoff device is structured and arranged to cutoff an electric power supply of the electric actuator when the battery reaches a voltage threshold harmful to its functioning (e.g., see Abstract, [0011], Fig. 2-3).

Claim 90, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the tool is one of pruning scissors, a saw (e.g., see Fig. 17), a fruit picking tool, a lawnmower, a bush cutter, a hedge cutter, an impact spanner and a pneumatic hammer (e.g., see [0071]-[0073], [0075][0078], [0092-0093], Fig. 4-5).

Claim 94, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the first sub-unit includes the cutoff device for automatically cutting off an electric supply of the first sub-unit when a battery voltage of the battery has reached a minimum low level prior to a deterioration, characterized by a significant loss of battery capacity and an increase of battery spontaneous discharge (e.g., see Para. [0080]-[0086], Fig. 3-7).

Claim 95, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein one module of the at least one electric or electronic modules includes the cutoff device to automatically cut off an electric supply of the first sub-unit when a voltage of battery has reached a minimum low level prior to a deterioration of the battery, characterized by significant loss of battery capacity and increase of/, battery spontaneous discharge (e.g., see Para. [0080]-[0086], Fig. 3-7).

Claim 101, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein, during a period of non-use of the first sub-unit, one module of the at least one electric or electronic modules places the battery in one of a no-consumption mode and a very-low-consumption mode (e.g., a vary low consumption mode of battery is implicitly taught when the tool is inactivated comparing to the motor of the tool being activated)(e.g., see Fig., 3-5).

Claim 102, '158 teaches the limitations of claim 101 as discussed above. It further teaches that wherein the one module of the at least one electric or electronic modules comprises a switch (e.g., 130a, 130b) arranged at one of the terminals of the battery to place the battery in one of the no-consumption mode and the very-low-consumption mode (e.g., a vary low consumption mode of battery is implicitly taught when the tool is inactivated comparing to the motor of the tool being activated) (e.g., see Fig., 2-3).

Claim 103, '158 teaches the limitations of claim 102 as discussed above. It further teaches that wherein the one module of the at least one electric or electronic modules further comprises one of a fuse and a circuit breaker (e.g., 220 in Fig. 2) arranged at least at one of the terminals of the battery, wherein the switch is arranged after the one of the fuse and the circuit breaker (e.g., see Abstract, Fig. 2-3).

Claim 107, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the at least one electric or electronic module comprises a single control module composed of at least one electronic board with at least one digital

processing unit associated with a memory and at least one of annexed digital circuits and analog circuits (e.g., see 60, Fig. 2).

Claim 108, '158 teaches the limitations of claim 107 as discussed above. It further teaches that wherein the at least one digital processing unit comprises at least one of a microprocessor (e.g., see [0125]), a microcontroller, and a digital signal processor (e.g., see 60, [0028]Fig. 2).

Claim 109, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the battery comprises an association of a series of cells (e.g., see 10 Fig. 2), and wherein the at least one electric or electronic module at least one of manages a charging, manages a discharging, balances a charging of each cell of the battery, evaluates and displays a capacity of the battery, protects the battery during a discharging against excess current when the tool is being used, manages the tool during storing phases, manages alarms, manages information, transmits information collected, and manages diagnostics (e.g., see Abstract, [0011], Fig. 2-3).

Claim 110, '158 teaches the limitations of claim 109 as discussed above. It further teaches that wherein the at least one electric or electronic module is structured and arranged to constantly exploit voltage measuring values of each cell of the battery in performing at least one of the managing of the charging, the managing of the discharging, the balancing of the charging of each cell, and the evaluating and the displaying of the capacity of the battery (e.g., see Abstract, [0011], Fig. 2-3).

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13. Claims 84-85, 88-90, 94-96, 98-105, 107-110, 132, 135-137, 139 are rejected under 35 U.S.C. 102(e) as being anticipated by Carrier et al. (US PG Pub. No. 20050077878, hereinafter '878).

Claims 84, 88, '878 teaches a power autonomous portable electric tool set, comprising:

a first sub-unit (e.g., 10, or 20, or 30 in Fig. 17, 18, 19; or 170 in Fig. 3B) generating a mechanical operation of a tool comprising an electric actuator [0015](Fig. 3B, 17, 18, 19);

a portable second sub-unit (e.g., 40 or 100)(Fig. 2-5, 17-19) forming an electric energy source of the set comprising a battery (e.g., 105)(Fig. 2-5) and at least one electric or electronic module located in a vicinity of the battery for at least one of controlling and managing the battery [0015](Fig. 3-7);

a third charger sub-unit (e.g., 150) for electrically recharging the battery comprising at least one electric supply source, wherein the third charger sub-unit adapts a voltage and a current of the at least one electric supply source to recharge the battery [0015](Fig. 3A, 4, 5); and

a cutoff device structured and arranged to cutoff an electric supply of the electric actuator(e.g., see Fig. 3-5),

wherein the first sub-unit is electrically disconnectably connectable to the second sub-unit [0015](Fig. 3B, 17, 18, 19), and

wherein the third sub-unit is electrically disconnectably connectable to the second sub-unit [0015](Fig. 3A, 4, 5).

Claim 85, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the battery comprises one of a rechargeable electrochemical lithium-ion (e.g., [0037][0046]) or rechargeable electrochemical lithium polymer battery, formed by an association of a series of cells, each cell comprising one of one element and a plurality of associated parallel elements (e.g., see Fig. 3-5).

Claim 88, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the cutoff device is structured and arranged to cutoff an electric power supply of the electric actuator at least one of automatically and manually (e.g., see Fig. 3-5).

Claim 89, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the cutoff device is structured and arranged to cutoff an electric power supply of the electric actuator when the battery reaches a voltage threshold harmful to its functioning (e.g., see [0023][0024] and Fig. 6, 7).

Claim 90, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the tool is one of pruning scissors, a saw (e.g., see Fig. 17), a fruit picking tool, a lawnmower, a bush cutter, a hedge cutter, an impact spanner and a pneumatic hammer (e.g., see [0071]-[0073], [0075][0078], [0092-0093], Fig. 4-5).

Claim 94, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the first sub-unit includes the cutoff device for automatically cutting off an electric supply of the first sub-unit when a battery voltage of the battery has reached a minimum low level prior to a deterioration, characterized by a significant loss

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of battery capacity and an increase of battery spontaneous discharge (e.g., see Para. [0080]-[0086], Fig. 3-7).

Claim 95, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein one module of the at least one electric or electronic modules includes the cutoff device to automatically cut off an electric supply of the first sub-unit when a voltage of battery has reached a minimum low level prior to a deterioration of the battery, characterized by significant loss of battery capacity and increase of/, battery spontaneous discharge (e.g., see Para. [0080]-[0086], Fig. 3-7).

Claim 96, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein one module of the at least one electric or electronic modules includes the cut off device to automatically cut off the electric charge of the battery when a voltage delivered by the third charger sub-unit has reached a maximum value prior to a deterioration of the battery, characterized by significant loss of battery capacity and increase of battery spontaneous discharge (e.g., see Para. [0076], Fig. 4-5).

Claim 98, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein one module of the at least one electric or electronic modules protects the battery against short circuits (e.g., see [0071]-[0073][0075][0078], Fig. 4-5).

Claim 99, '878 teaches the limitations of claim 98 as discussed above. It further teaches that wherein the one module of the at least one electric or electronic modules comprises a fuse arranged at least at one of the terminals of the battery to protect the battery against the short circuits (e.g., see [0071-0073][0075][0078] [0092-0093], Fig. 4-5).

Claim 100, '878 teaches the limitations of claim 98 as discussed above. It further teaches that wherein the one module of the at least one electric or electronic modules comprises a circuit breaker arranged at least at one of the terminals of the battery to protect the battery against the short circuits (e.g., see [0071]-[0073], [0075][0078], [0092-0093], Fig. 4-5).

Claim 101, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein, during a period of non-use of the first sub-unit, one module of the at least one electric or electronic modules places the battery in one of a no-consumption mode and a very-low-consumption mode (e.g., a vary low consumption mode of battery is implicitly taught when the tool is inactivated comparing to the tool being active used)(e.g., see Fig., 3-5).

Claim 102, '878 teaches the limitations of claim 101 as discussed above. It further teaches that wherein the one module of the at least one electric or electronic modules comprises a switch (e.g., 130a, 130b) arranged at one of the terminals of the battery to place the battery in one of the no-consumption mode and the very-low-consumption mode (e.g., a vary low consumption mode of battery is implicitly taught when the tool is inactivated comparing to the tool being active used) (e.g., see Fig., 3-5).

Claim 103, '878 teaches the limitations of claim 102 as discussed above. It further teaches that wherein the one module of the at least one electric or electronic modules further comprises one of a fuse and a circuit breaker arranged at least at one

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of the terminals of the battery, wherein the switch is arranged after the one of the fuse and the circuit breaker (e.g., see [0071]-[0073], [0075][0078], [0092-0093], Fig. 4-5).

Claim 104, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the third charger sub-unit includes the cutoff device to automatically cut off an electric charging of the battery when a voltage of the battery has reached a maximum high level prior to a degradation of the battery (e.g., see Para. [0076], Fig. 4-5).

Claim 105, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the third charger sub-unit includes the cutoff device to automatically cut off an electric charging of the second sub-unit when a charging current to the battery has reached a minimum low level recommended or required by a manufacturer of the battery (e.g., see Para. [0076], Fig. 4-5).

Claim 107, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the at least one electric or electronic module comprises a single control module composed of at least one electronic board with at least one digital processing unit associated with a memory (e.g., see [0125]) and at least one of annexed digital circuits and analog circuits (Fig. 3-5).

Claim 108, '878 teaches the limitations of claim 107 as discussed above. It further teaches that wherein the at least one digital processing unit comprises at least one of a microprocessor (e.g., see [0125]), a microcontroller, and a digital signal processor.

Claim 109, '878 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the battery comprises an association of a series of cells, and wherein the at least one electric or electronic module at least one of manages a charging, manages a discharging, balances a charging of each cell of the battery, evaluates and displays a capacity of the battery, protects the battery during a discharging against excess current when the tool is being used, manages the tool during storing phases, manages alarms, manages information, transmits information collected, and manages diagnostics (e.g., see Fig. 3-5).

Claim 110, '878 teaches the limitations of claim 109 as discussed above. It further teaches that wherein the at least one electric or electronic module is structured and arranged to constantly exploit voltage measuring values of each cell of the battery in performing at least one of the managing of the charging, the managing of the discharging, the balancing of the charging of each cell, and the evaluating and the displaying of the capacity of the battery (e.g., see [0073-0074][0115]).

Claim 132, '878 teaches the limitations of claim 107 as discussed above. It further teaches that wherein the second sub-unit further comprises connection terminals, wherein the at least one digital processing unit detects a live connection of the third charger sub-unit to the battery of the second sub-unit by a voltage measurement by the control module at least at one of the connection terminals. (e.g., see [0058][0059][0065][0066], Fig. 3-5).

Claim 134, '878 teaches the limitations of claim 132 as discussed above. It further teaches that wherein when the control module detects an excessive or

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insufficient voltage of the third charger sub-unit in an area of the connection terminals, the digital processing unit interrupts a charging and sets off at least one of a sound alarm and a visual alarm (e.g., see [0104-0112]).

Claim 135, '878 teaches the limitations of claim 109 as discussed above. It further teaches that a digital processing unit memory; a separate operating terminal; and at least one of a wire connection (e.g., terminal 2, 5), a radio frequency connection, and an infrared connection to the separate operating terminal, wherein the managing of information and the managing of diagnostics comprises storing information acquired during use of the tool in the digital processing unit memory, the information being transmittable by the at least one of the wire connection, the radiofrequency connection, and the infrared connection to the separate operating terminal (e.g., see [0115], Fig. 3A, 3B, 11, 12) .

Claim 136, '878 teaches the limitations of claim 135 as discussed above. It further teaches that wherein the information acquired includes at least one of a number of recharges, a computation of a number of hours the tool was used, a change in the capacity of the battery in time, and an average energy consumed by the tool (e.g., see [0115], Fig. 3A, 3B, 11, 12).

Claim 139, '878 teaches the limitations of claim 107 as discussed above. It further teaches that wherein the first sub-unit further comprises an electric actuator module (Fig. 3B) for controlling the electric actuator, and wherein the control module is associated with the electric actuator module on the electronic board, with both the

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control module and the electric actuator module using a same digital processing unit of the at least one digital processing unit (e.g. see Fig. 3B).

Claim 140, '878 teaches the limitations of claim 111 as discussed above. It further teaches that a charge switching component, wherein the at least one electric or electronic module further comprises a control module, which comprises, for each cell, safety redundant circuits for stopping a charging, and wherein, in a case of a voltage overload of a cell, each safety redundant circuit is individually capable of controlling a general interruption of the charging by directly deactivating the charge switching component without biasing the at least one digital processing unit (e.g., see Para. [0070][0071][0073][**0074**][0076], Fig. 4-5).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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16. Claims 86-87, 91-93 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakakibara (US Patent No. 6433517, hereinafter '517) in view of Pfeifer et al, (US Patent No. 6087815, hereinafter '7815).

Claims 86-87, 91-93, '517 teaches the limitations of claim 84 as discussed above. It

'517 does not explicitly disclose that a first flexible disconnectable electrical cord, wherein the first sub-unit is electrically disconnectably connectable to the second sub-unit by the first flexible disconnectable electrical cord, and the first flexible disconnectable electrical cord comprises a second connector couplable to the second sub-unit. However, using a flexible cable with corresponding matching connectors to connect two electrical modules such as electrical power tool electrically and its power source is known in the art to one of ordinary skill as the time of the invention. For example, '7815 discloses a portable power tool system using a flexible cable (46) with corresponding mating connectors to connect the power tool 40 to its power source 44 (Fig. 2) in order to make the needed electrical connections. Therefore, the subject as whole would have been obvious to one of ordinary skill in art at the time of invention to have used a flexible cable with corresponding connectors in the power tool system of '517, as taught by '7815, in order to make the needed electrically connections of the electrical modules, since '7815 has demonstrated that it is a suitable method in order to connecting two electrical module together electrically.

17. Claims 97, 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakakibara (US Patent No. 6433517, hereinafter '517).

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Claim 97, '517 teaches the limitations of claim 84 as discussed above. It further teaches that wherein one module of the at least one electric or electronic modules includes the cutoff device to automatically cut off an electric charging of the battery when a charging current for the battery has reached a minimum low level (e.g., see col. Lines 27-55, Fig. 5) recommended or required by the manufacturer of the battery (103). '517 does not explicitly disclose that the minimum low level above is based on the recommended or required by the manufacturer of the battery. However, it would have been obvious to one of ordinary in art at the time of invention have used the minimum low level recommended or required by the manufacturer of the battery since the manufacturer of the battery have the best knowledge of the perimeters for charging their battery. Therefore, the subject matter as whole would have been obvious to one of ordinary in art to have used the minimum low level recommended or required by the manufacturer of the battery the minimum low level in the battery charging of '517 since the manufacturer of the battery have the best knowledge of the perimeters for charging their battery.

Claim 106, '517 discloses the claimed invention as discussed above except for the elements of battery of the second sub-unit are in a commercial 18650 size. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have chosen the elements of battery of the second sub-unit are in a commercial 18650 size, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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18. Claims 111-115, 119-125, 127-129, 140-141 are rejected under 35 U.S.C.

103(a) as being unpatentable over Carrier et al. (US PG Pub. No. 20050077878, hereinafter '878) in view of Rouillard et al, (US Patent No. 5808469, hereinafter '469).

Claim 111, '878 teaches the claimed limitations of claim 84 as discussed above.

'878 further teaches the battery further comprises n serially associated cells and the at least one electric or electronic module comprises a digital processing unit (Fig. 3-5).

'878 does not explicitly teach the at least one electric or electronic module comprises a digital processing unit having an input analog/digital converter, an acquisition electronic chain comprising identical n analog modules mounted at terminals of the n cells to measure voltage values for each cell; at least one analog multiplexer; and an adapted circuit, wherein the voltage values measured by the n analog modules are directed, one after the other, by the at least one analog multiplexer toward the input analog/digital converter after amplification by the adapted circuit.

'469 discloses a battery monitoring circuit (Fig. 2) having at least one electric or electronic module comprises a digital processing unit having an input analog/digital converter, an acquisition electronic chain comprising identical n analog modules mounted at terminals of the n cells to measure voltage values for each cell; at least one analog multiplexer; and an adapted circuit, wherein the voltage values measured by the n analog modules are directed, one after the other, by the at least one analog multiplexer toward the input analog/digital converter after amplification by the adapted circuit (Fig. 2). '469 further discloses that the battery voltage at each cell can be measured by using the disclosed battery monitoring circuit (e.g., see Abstract, col. 4,

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lines 24-43, Fig. 1-2). Therefore, the subject matter as whole would have been obvious to one of ordinary in art at the time of invention to have used the battery monitoring circuit of '469 in the power tool set of '878, as taught by '469, in order to have measured battery voltage the each cell, since '469 has demonstrated that it is a suitable method in order to have measured the battery voltage at each cell.

Claim 112, '878 and 469 teach the limitations of claim 111. '469 further teaches a differential electronic circuit with an operational amplifier (e.g., 112), using one of resistances and input resistive elements (e.g., 100), being arranged to subtract a voltage measured at a negative terminal of a cell from a voltage measurement of a positive terminal of the cell (e.g., see Fig. 2). '469 reads the same obviousness as discussed in the claim 111 rejection above.

Claims 113-116, '878 and 469 teach the claimed invention except for explicitly disclosing wherein the one of resistances and input resistive elements have an impedance greater than or about 1 Mohm, to obtain very low leakage currents, wherein the leakage currents are less than 1/20000th per hour of a total capacity of the battery, or wherein the voltage measuring values of each cell are delivered with a measuring precision of at least 50 mV. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the one of resistances and input resistive elements have an impedance greater than or about 1 Mohm, to obtain very low leakage currents, the leakage currents are less than 1/20000th per hour of a total capacity of the battery, and the voltage measuring values of each cell are delivered with a measuring precision of at least 50 mV., since it has been held that where the

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general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

For claim 116, '878 and 469 teach that the measuring precision of at least 50 mV (e.g., see discussed above), As regarding to the limitations "being obtained by calibration during a manufacture of an electronic board of the at least one electric or electronic module", however, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Claim 119, '878 and 469 teach the claimed limitations of claim 111 as discussed above. '878 further teaches that a discharge switching component; and a sound or visual warning signal, wherein managing a discharging comprises: constantly checking voltage measuring values of each cell by the digital processing unit; interrupting the discharging when the digital processing unit detects that one of the voltages measuring values of a cell has reached a minimum discharge threshold recommended by the manufacturer of the battery; and cutting off the discharging by deactivating the discharge switching component, resulting in the tool being stopped, and by activating the sound or visual warning signal (e.g., see [0115], Fig. 3-5, 11, 12).

Claim 140, '878 and 469 the limitations of claim 111 as discussed above. '878 further teaches that a charge switching component, wherein the at least one electric or

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electronic module further comprises a control module, which comprises, for each cell, safety redundant circuits for stopping a charging, and wherein, in a case of a voltage overload of a cell, each safety redundant circuit is individually capable of controlling a general interruption of the charging by directly deactivating the charge switching component without biasing the at least one digital processing unit (e.g., see Para. [0070][0071][0073][**0074**][0076], Fig. 4-5).

Claim 141, '878 and 469 teach the claimed limitations of claim 120 as discussed above. '878 further teaches that wherein the control module further comprises a discharge stopping redundant circuit, wherein if the analog electronic circuit detects a discharging current equal to or greater than a maximum value allowed for the battery, the discharge stopping redundant circuit interrupts the discharging by directly deactivating the discharge switching component without biasing the digital processing unit (e.g., see [0093,0094], Fig. 3B, 8A, 8B).

19. Claims 111-116, 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano et al. (US PG Pub. No. 20030096158, hereinafter '158) in view of Rouillard et al, (US Patent No. 5808469, hereinafter '469).

Claim 111, '158 teaches the claimed limitations of claim 84 as discussed above.

'158 further teach the battery further comprises n serially associated cells and the at least one electric or electronic module comprises a digital processing unit (Fig. 2) the at least one electric or electronic module comprises a digital processing unit having an input analog/digital converter for measuring the voltage value of the battery cells,

'158 does not explicitly the at least one electric or electronic module comprises a digital processing unit having an acquisition electronic chain comprising identical n analog modules mounted at terminals of the n cells to measure voltage values for each cell; at least one analog multiplexer; and an adapted circuit, wherein the voltage values measured by the n analog modules are directed, one after the other, by the at least one analog multiplexer toward the input analog/digital converter after amplification by the adapted circuit.

'469 discloses a battery monitoring circuit (Fig. 2) having at least one electric or electronic module comprises a digital processing unit having an input analog/digital converter, an acquisition electronic chain comprising identical n analog modules mounted at terminals of the n cells to measure voltage values for each cell; at least one analog multiplexer; and an adapted circuit, wherein the voltage values measured by the n analog modules are directed, one after the other, by the at least one analog multiplexer toward the input analog/digital converter after amplification by the adapted circuit (Fig. 2). '469 further discloses that the battery voltage at each cell can be measured by using the disclosed battery monitoring circuit (e.g., see Abstract, col. 4, lines 24-43, Fig. 1-2). Therefore, the subject matter as whole would have been obvious to one of ordinary in art at the time of invention to have used the battery monitoring circuit of '469 in the power tool set of '158, as taught by '469, in order to have measured battery voltage the each cell, since '469 has demonstrated that it is a suitable method in order to have measured the battery voltage at each cell.

Claim 112, '158 and 469 teach the limitations of claim 111. '469 further teaches a differential electronic circuit with an operational amplifier (e.g., 112), using one of resistances and input resistive elements (e.g., 100), being arranged to subtract a voltage measured at a negative terminal of a cell from a voltage measurement of a positive terminal of the cell (e.g., see Fig. 2). '469 reads the same obviousness as discussed in the claim 111 rejection above.

Claims 113-116, '158 and 469 teach the claimed invention except for explicitly disclosing wherein the one of resistances and input resistive elements have an impedance greater than or about 1 Mohm, to obtain very low leakage currents, wherein the leakage currents are less than 1/20000th per hour of a total capacity of the battery, or wherein the voltage measuring values of each cell are delivered with a measuring precision of at least 50 mV. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the one of resistances and input resistive elements have an impedance greater than or about 1 Mohm, to obtain very low leakage currents, the leakage currents are less than 1/20000th per hour of a total capacity of the battery, and the voltage measuring values of each cell are delivered with a measuring precision of at least 50 mV., since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

For claim 116, '878 and 469 teach the claimed limitations as discussed above. As regarding to the limitations “ being obtained by calibration during a manufacture of an electronic board of the at least one electric or electronic module”, even though

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product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Claim 119, '878 and 469 teach the claimed limitations of claim 111 as discussed above. '158 further teaches that a discharge switching component; and a sound or visual warning signal, wherein managing a discharging comprises: constantly checking voltage measuring values of each cell by the digital processing unit; interrupting the discharging when the digital processing unit detects that one of the voltages measuring values of a cell has reached a minimum discharge threshold recommended by the manufacturer of the battery; and cutting off the discharging by deactivating the discharge switching component, resulting in the tool being stopped, and by activating the sound or visual warning signal (e.g., see [Step 323, 326, 327, Fig. 3]).

'158 does not explicitly disclose that the minimum discharge threshold being used is recommended by the manufacturer of the battery. However, it would have been obvious to one of ordinary in art at the time of invention to have used the manufacture recommended perimeters regarding how to use the battery since the manufacture has the best knowledge regarding how to use their products.

20. Claim 142 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano et al. (US PG Pub. No. 20030096158, hereinafter '158)

Claim 142, '158 teaches the limitations of claim 84 as discussed above. It further teaches that wherein the third charger sub-unit further comprises a special circuit for regulating voltage and current, wherein the special circuit generates a voltage with a precision approximating 0.5% and a controlled current (e.g., see [0058-0059], Fig. 3A, 4, 5). (103)

'878 does not explicitly disclose the voltage generated with a precision approximating 0.5%. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have generated the voltage with a precision approximating 0.5%. , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

21. Claims 118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano et al. (US PG Pub. No. 20030096158, hereinafter '158) in view of Popescu (US Patent No. 6285161, hereinafter '161).

'158 teaches the claimed invention except for a dissipating circuits including electronic switchers associated with resistive elements, wherein a balancing of the charging of the cells with respect to one another is managed by the digital processing unit controlling a change in a charging current with the dissipating circuits. '161 discloses a battery charging circuit (Fig. 1) having a dissipating circuits including electronic switchers associated with resistive elements, wherein a balancing of the charging of the cells with respect to one another is managed by the digital processing unit controlling a change in a charging current with the dissipating circuits. It further

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teaches that the circuit will balance the charge in each battery cell. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have used the balancing circuit of '161 in the charging circuit of '878, as taught by '161, in order to have balanced charge in each battery cell, since '161 has demonstrated that it is a suitable method in order to have balanced the charge in each cell during charging the battery.

22. Claims 137, 138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano et al. (US PG Pub. No. 20030096158, hereinafter '158) in view of Sakakibara et al. (US Patent No. 7227335, hereinafter '335).

Claims 137-138, '158 teaches the claimed invention except for a separate operating terminal being at least one of a personal computer, an electronic personal assistant, and a GSM, or the separate operating terminal is connectable to the Internet.

'335 discloses a power tool set having an interface with a computer (Fig. 6) and can be connected to the Internet for transmitting the diagnostic information through the Internet (e.g., col. 12, lines 7-46, Fig. 6). Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to have made a separate operating terminal in the power tool set of '158 as a personal computer, as taught by '335, in order to have transmitted diagnostic information through the Internet, since '335 has demonstrated that it is a suitable method to have transmitted the diagnostic information through the Internet.

Examiner's Note:

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23. Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

24. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jue Zhang whose telephone number is (571) 270-1263. The examiner can normally be reached on M-TH 8:00-5:00PM EST, Other F 8:00AM-4:00PM EST

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Lewis can be reached on 571-272-1838. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JZ

*/Bao Q. Vu/
Primary Examiner, Art Unit 2838
December 3, 2009*